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MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 120

April, 1924

TRUCK-CROP INSECT INVESTIGATIONS

J. E. Graf, Entomologist Acting in Charge

W. H. White of the Washington office visited greenhouses in the vicinity of Philadelphia, Pa, and Riverton, N. J., to conduct fumigation tests for the control of insects on vegetables grown under glass. The trip extended over a period of ten days and the work was materially expedited through the courtesy of G. F. Doucette of the Willow Grove, Pa., laboratory, who was instrumental in introducing Mr. White to many of the greenhouse men.

R. E. Campbell and C. F. Stahl, in charge of the Alhambra and Riverside, Calif., laboratories, respectively, report that on account of Federal and State quarantines against the foot-and-mouth disease in California it has been advisable partially to suspend some of their field work.

Mr Campbell reports that the infestation of the pea aphid in the San Francisco Bay region is increasing normally at the present time and he anticipates that an opportunity will be offered for continuing his tests in the control of this insect under favorable conditions as regards infestation.

B. L. Boyden, in charge of the sweet-potato weevil eradication work in Florida, reports that during the spring campaign in Baker County no sweet-potato weevils were collected on any of the traps on the one remaining farm known to be infested or on other farms regarded as suspicious properties.

Preliminary estimates on the winter survival of the Mexican bean beetle, recently made by N. F. Howard, in charge of the Mexican bean beetle project, Birmingham, Ala., indicate that the winter killing of the insect was probably higher than normal. In view of the fact that larger colonies were found in hibernation during the preceding fall, however, it is estimated that a normal infestation should occur, though it is too early to give definite figures on the probable infestation for the present season.

Appointments

W. D. Mecum, who for a number of seasons has been employed by J. E. Dudley, Jr., in charge of the Madison, Wis., laboratory, has been appointed as Temporary Field Assistant and will have headquarters at Racine, Wis., where biological and control investigations of the onion maggot, under the direction of Mr. Dudley, will be conducted.

L. W. Brannon, formerly connected with the Mexican bean beetle laboratory, Birmingham, Ala., has been reinstated and will assist Neale F. Howard in research investigations on the Mexican bean beetle.

P. R. Hickborn has been appointed as Temporary Field Assistant to assist Mr. Campbell in pea aphid investigations in the San Jose Valley of California.

Visitors

Prof. R. W. Harned of Mississippi, Drs. Wilmon Newell and J. H. Montgomery of Florida, and Mr. Otto Brown of Alabama were recent visitors at the office and conferred with Bureau officials regarding the sweet-potato weevil eradication in the South.

Dr. T. J. Headlee of New Jersey visited the office and discussed new and promising remedies for wireworms affecting truck crops.

T. C. Johnson, Director of the Virginia Truck Experiment Station, Norfolk, visited the office and discussed general truck-crop problems.

Dr. Wm. Moore of the American Cyanamid Co., New York City, visited the office and conferred regarding the use of calcium cyanide for the control of miscellaneous truck-crop insects.

W. J. Schoene, State Entomologist of Virginia, Blacksburg, visited the office and discussed various truck-crop insects of recent importance in Virginia.

SOUTHERN FIELD-CROP INSECT INVESTIGATIONS

J. L. Webb, Entomologist Acting in Charge

Dr. F. A. Fenton of the Iowa Agricultural Experiment Station, Ames, has been engaged to take charge of the boll weevil laboratory at Florence, S. C., conducted by the Department in cooperation with the South Carolina Experiment Station. Doctor Fenton will enter upon his duties on May 1.

Walter E. Dove, who formerly was engaged in work on insects affecting the health of animals at the Dallas, Tex., laboratory, has been reinstated effective April 7. At present Mr. Dove is conducting investigations of the cattle grub or ox warble in South Dakota. Later on he will be engaged in similar investigations in the vicinity of Dallas and will also do some work on the development of attractants, repellents, and larvicides in connection with screwworm control.

Travis E. McNeel has been appointed Junior Entomologist at the Mound, La., laboratory, and will assist Dr. W. V. King in malaria mosquito investigations.

Mr. O. G. Babcock left by automobile from his field station at Sonora, Tex., on April 17 for Carlsbad, N. Mex., where he will spend several days working with Mr. Vernon Bailey on an insect survey of the Carlsbad Cave. This is one of the largest caves in the world and will probably yield some interesting insect material. Mr. Babcock is to pay considerable attention to the external

parasites of bats and various mammals in the vicinity of the cave. En route from Sonora to Carlsbad he is to interview stockmen regarding their problem with insects affecting livestock.

Arrangements are being made at the tobacco insect laboratory at Clarksville, Tenn., to detail two men, during May and part of June, for investigations of tobacco wireworms at Lexington, Ky. Their work will consist of tests of remedies and recording of data upon damage and distribution.

An important conference was held at Tucson, Ariz., on April 10 to determine the best procedure to follow in view of the recent discovery of the *Thurberia* weevil in cotton grown near Tucson. It was attended by the Arizona Quarantine Commission, representatives of cotton planting interests in Arizona, and by W. D. Hunter, R. E. McDonald of the State department of agriculture, as well as A. W. Morrill and W. D. Pierce. The State commission decided, on the advice of W. D. Hunter and R. E. McDonald, to establish a noncotton zone extending about 30 miles from the Santa Catalina Mountains.

Dr. W. R. Dodson, Chairman of the Cotton Council of the Association of Southern Agricultural Workers, called a meeting at Atlanta, Ga., on April 14, for considering plans to use as nearly as possible a uniform system in planning and recording boll weevil experiments during the coming season. Such a course is highly desirable on account of the difficulty which has been experienced heretofore in comparing results obtained in experiments performed according to diverse plans. Entomologists from practically all of the Southern States except North Carolina and Florida were present. B. R. Coad represented the Bureau of Entomology. A definite program was worked out and adopted.

FOREST INSECT INVESTIGATIONS

F. C. Craighead, Entomologist in Charge

Dr. Craighead spent several days during the last week in April in the vicinity of Covington, Va., investigating the southern pine beetle situation. It was found that this epidemic has developed into unusual proportions in this region and that at least 25 per cent of the pine stands have been destroyed. Only the finer and better older stands have been attacked while in no case was the beetle found in any pines under 30 years of age. Paper and pulp companies drawing their supplies from this region will be seriously affected during the next few years through a shortage in material resulting from the work of this beetle. Considerable effort is being made in salvaging the killed timber although the greater portion of it will deteriorate too rapidly to be utilized.

Dr. Snyder reports that damage to the woodwork of buildings and their contents by termites or white ants has continued to be serious throughout the United States and to date from July 1, 1923, 94 cases have been reported to the Bureau, which is probably only a small proportion of the actual number of cases that have occurred. The Bureau is advocating slight modifications of the

building regulations of cities to protect householders. These simple rules provide that no untreated wood shall be used in contact with or near the ground and that wooden beams, or stringers, shall not be laid in concrete, but that there must be at least an inch of concrete below the beams. Brick walls, if they run below the surface of the ground, should be faced with concrete between the earth and the bricks. No lime mortar should be used in case of brick work near the ground.

A moving picture is to be taken this spring outlining the damage caused by insects to forest products--when and how the damage occurs and the modifications in lumber, mill, and factory operations necessary to prevent this injury, as well as methods of more direct control.

Control operations against the western pine beetle on the Southern Oregon-Northern California project were resumed soon after April 1. Four camps of about 18 men each are at work in the few remaining heavily infested areas and unless the season is unusually short the work will be completed by June 1. An intensive cruise will be made during the summer months to determine the influence of various control operations. This cruise will show the relative value of fall and spring control work, the value of control work on varying amounts of infestation, and many other phases of the work which are of practical importance. Observations and check cruises already made indicate that there has been a decided reduction in the infestation during the past year throughout the entire area. The chief difficulty encountered in the control work this spring has been to mark enough trees to keep the treating crews busy. The decreasing infestation entails greater costs per thousand and per tree.

Dr. H. E. Burke reports an unusual type of insect injury to large stands of second-growth yellow pine, sugar pine, and Douglas fir timber in northern California. The egg-laying wounds of some species of Cicada have killed or seriously injured a large proportion of the small branches from one-tenth to one-half inch in diameter. The open, cankerlike, shredded form of the wound caused the local forest officers to suspect some fungus disease, possibly the white pine blister rust.

Dr. Burke also reports that a secondary shade-tree pest (Xylotrechus nauticus Mann.) whose normal host is the California live oak, has become, temporarily at least, for one orchardist, a serious fruit-tree pest. During the past year about 20 fine, large, vigorous pear trees were attacked and killed by the winding mines of the borers. That the trees were in vigorous health when attacked is indicated by the present normal production of foliage and bloom even though the bark of the trunk and larger branches is riddled by the borer mines. The trees are being felled and the infested wood will be burned to prevent the spread of the infestation. When a small orchard produces an average annual cash crop valued at \$58,000 there is likely to be little haggling about pest control.

J. C. Evenden, of the Forest Insect Field Station, Coeur d'Alene, Idaho, reports that a plan for the control of the mountain pine beetle epidemic in the lodgepole pine stands of the Missoula National Forest, Mont., is now being

considered and several hundred dollars have been secured for preliminary work on this project. This epidemic has been in existence for the last ten years, and during this time over a billion board feet of lodgepole pine and yellow pine has been destroyed.

Supervisor McHarg, Coeur d'Alene National Forest, and Mr. Evenden, as members of the Forestry and Lumbering Committee of the Coeur d'Alene Chamber of Commerce, arranged a program on Forest Protection which was given at the regular Monday, April 21, meeting of the Chamber and at the Coeur d'Alene High School on Wednesday, April 23. Mr. Evenden spoke on forest protection and its importance to Coeur d'Alene.

J. E. Patterson and Assistant are engaged in making the annual spring survey of the Rogue River area in southern Oregon. This area was laid out in 1914 and has been cruised annually since that year. The infestation of Dendroctonus brevicornis in the yellow pine on this area has been recorded each year and a large amount of important data on the cycles and fluctuations of these infestations has already been secured. This is one of the oldest investigative projects of the Division in the West. It is planned to continue the study for some time in the future, and it is expected to result in important information on the behavior of these beetles that may lead to prediction of epidemics and more effective control.

J. M. Miller and H. L. Person spent the period from April 9 to 15 in an examination of forest areas in the San Bernardino Mountains in Southern California. These surveys were requested and financed by the Forest Service, the County Forester of Los Angeles, and the owners of a number of private summer resorts. The recreational development in this region has resulted in a high aesthetic value for all forest cover. The interest that has been manifested in protection against insect losses warrants the use of methods much more intensive than those which can be employed in the protection of timber values only.

Mr. Person also made a survey of an experimental project on the Santa Barbara National Forest where the complete extermination of the Dendroctonus beetles is being attempted.

STORED-PRODUCT INSECT INVESTIGATIONS

E. A. Back, Entomologist in Charge

The field work of the bean weevil investigations in Stanislaus County, Calif., has been seriously affected by the outbreak of the foot-and-mouth disease, according to the reports of A. O. Larson.

Dr. E. A. Back read a paper on the effect of cold storage on insects before the 13th Annual Convention of the American Association of Ice and Refrigeration at the New Willard Hotel, Washington, D. C., in the latter part of March.

Dr. Back went to New York April 8 to inform himself regarding development of certain so-called mothproofing treatments now being advertised rather extensively.

Friends of R. T. Cotton will be glad to learn that he is rapidly recovering from an operation for appendicitis.

BEE CULTURE INVESTIGATIONS

E. F. Phillips, Apiculturist in Charge

Recent visitors to the Bee Culture Laboratory were Prof. N. E. Phillips, Extension Apiarist, and D. L. Van Dine, Extension Entomologist, both from State College, Pa. Dr. E. Kohn of Grover Hill, Ohio, and Dr. L. D. Leonard of Minneapolis, Minn., both prominent beekeepers, also visited the laboratory.

E. F. Phillips and A. P. Sturtevant made a short trip to New York State in connection with the work on bee diseases.

CEREAL AND FORAGE INSECT INVESTIGATIONS

G. A. Dean, Entomologist in Charge

K. W. Babcock visited Washington during the week of April 18-25 in preparation for a trip to central and southern Europe for the purpose of investigating the environmental relations of the corn borer in continental Europe. It is Mr. Babcock's intention to sail for Europe on May 10.

P. R. Myers visited Washington during the first week of April in connection with the preparation of a taxonomic paper on parasites of the Hessian fly, which he hopes to publish within the next few months.

The motion picture entitled "Hoppers" has been released by the Motion Picture Service of the Department. This film was made in cooperation with this branch of the Bureau and was directed in part by Mr. Stewart Lockwood, in charge of the grasshopper work in the Northwestern States. In addition to some very excellent pictures of actual control work, this film contains several very successful views of the hatching and early development of one of the larger species of grasshoppers.

Prof. Geo. A. Dean spent several days in Ohio during the European corn borer clean-up campaign. From here he went to Sioux City, Iowa, to visit the laboratory of the branch of Cereal and Forage Insect Investigations. He then went to Salt Lake City, Utah, to discuss matters relative to the alfalfa

weevil investigations in the Northwestern States. On his return to Washington he visited the Kansas Agricultural Experiment Station at Manhattan, Kans., the Department of Entomology of Kansas University at Lawrence, and the Webster Groves, Mo., laboratory of the branch of Cereal and Forage Insect Investigations.

FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Entomologist in Charge

James Zetek, in charge of the field station in the Panama Canal Zone, has just returned from an inspection in the Province of Cocle, Panama, and reports the citrus black fly very abundant and thoroughly established at Aguadulce, Pocri, and Anton. It was evidently introduced with citrus plants brought over from Panama City within the last few years. Its spread has been very rapid.

Dr. Wm. Mann of the Bureau and J. Chester Bradley of Cornell University were recent visitors at the field station at Ancon, Canal Zone.

Robert M. Fouts has been appointed Field Assistant and assigned to duty in connection with pecan insect investigations at Brownwood, Tex.

MISCELLANEOUS INVESTIGATIONS

(Items from the National Museum contributed by S. A. Rohwer)

Prof. C. R. Crosby of Cornell University, Ithaca, N. Y., and Dr. W. E. Britton, of New Haven, Conn., were here on account of the meeting of the Federal Horticultural Board and took this opportunity to renew their acquaintance with the various members of the Bureau in the Division of Insects.

Dr. H. G. Dyar has left for a three months' trip to the West Coast to study and collect mosquitoes. There are a few species occurring in the Western States which are unknown in the larval stages, and Dr. Dyar is very anxious to obtain notes on the habits and also a complete set of the immature stages.

Dr. A. G. Böving has recently completed an arrangement of the North American coleopterous larvae of the family Carabidae and assorted all of the undetermined material to genera; so this group of the collection is now well arranged in a systematic order.

Recently the Museum has received as a gift from Mr. S. Rosenberg, of Copenhagen, eight rare coleopterous larvae, among which are Cymindis angularis and Brachinus crepitans, neither of which has been described.

L. B. Woodruff of New York City spent two or three days studying types of Hemiptera in the collection.

During the month the Museum has sent to the Zoological Museum at Copenhagen a collection of 34 identified tenebrionid larvae. These larvae were selected from the material recently arranged by R. A. St. George.

Prof. Herbert Osborn, of the University of Ohio, who was in Washington in connection with meetings of the National Academy of Science, spent April 28 in the Division of Insects comparing some types of Hemiptera.

T. B. Mitchell of Raleigh, N. C., attending the Federal Horticultural Board conference, spent a few hours in the Museum comparing various species of bees.

April 21 Dr. E. A. Schwarz was eighty years old. To celebrate his birthday and to show appreciation for his kindnesses the ladies of the Division of Insects gave him a magnificent bunch of roses with appropriate greetings. The same evening a dinner attended by 26 people was given in his honor at the Cosmos Club, at which Dr. Howard acted as toastmaster. Speeches were made by Dr. B. Pickman Mann, Dr. C. W. Stiles, Dr. E. D. Ball, Dr. J. M. Aldrich and others. All the speakers pointed out the value of Dr. Schwarz's services to the science of entomology, recalling instances that occurred during his past life. All expressed the opinion that the most important reason that Dr. Schwarz had so many friends was because he had always been willing to help others and had taken so much interest in the work of younger men. To these addresses Dr. Schwarz replied in his characteristic modest manner. The April number of the Proceedings of the Entomological Society of Washington was issued on April 21 with an appropriate editorial about Dr. Schwarz, and at the regular meeting on May 1 Dr. Howard gave a brief talk and exhibited a dozen lantern slides showing pictures of Dr. Schwarz taken at various times since his connection with the Department of Agriculture.

LIBRARY

Mabel Colcord, Librarian

New Books

Bazile, G.

Experiences de destruction de criquets par lance-flammes, produits toxiques et autres procedes, effectuees dans la Crau et en Algerie en mai, juin et juillet 1919. illus. In Ann. Sci. Agron., Annee 37, p. 259-278. Paris, 1920.

Cockerham, K. L.

A manual for spraying. New York, The Macmillan Co., 1923. 87 p., illus.

Curtis, John.

A guide to an arrangement of British insects... Ed. 2, greatly enl. London, Printed for the author, 1837. vi, 294 p.

Escherich, Karl.

Die Forstinsekten Mitteleuropas. v. 2. Berlin, P. Parey, 1923.

Frew, J. G. H.

On the larval anatomy of the gout-fly of barley (*Chlorops taeniopus* Meig.) and two related acalyptrate muscids, with notes on their winter host plants. In Proc. Zool. Soc. London, 1923, no. 52, p. 783-821, illus. List of literature, p. 820-821.

On the morphology of the head capsule and mouth parts of *Chlorops taeniopus* Meig. (Diptera) In Linnaean Soc. London. Jour. Zool., v. 35, p. 399-410 illus. December, 1923.

Frey, Richard.

Studien über den Bau des Mundes der niederen Diptera Schizophora nebst Bemerkungen über die Systematik dieser Dipteregruppe. In Acta Soc. Fauna Fl. Fennica, v. 48, no. 3. 247 p., 10 pl.

Fryer, P. J.

Successful spraying and how to achieve it. A handbook for growers, nurserymen, horticulturists, gardeners and amateurs. London, Ernest Benn, limited, 1923. 154 p., illus.

Fuller, Claude.

Tsetse in the Transvaal and surrounding territories - an historical review... Pretoria, Government Printing and Stationery Office, 1923. 64 p., map. (Union of South Africa. Dept. of Agr. Entom. Mem. 1) Literature cited, p. 64.

Gerould, J. H.

Inheritance of white wing color, a sex-limited (sex controlled) variation in yellow pierid butterflies. In Genetics, v. 8, p. 495-551, table. November, 1923.

Great Britain- Ministry of Agriculture and Fisheries.

Collected papers on bee keeping. London, Office of the Ministry of Agriculture and Fisheries, 1922. 46 p., 3 pl. (Its Sectional volume no. 7)

Handschin, Eduard.

Die Collembolenfauna des schweizerischen Nationalparkes... Zurich, Gebrüder Fretz, 1924. In Denkschriften der Schweizerischen naturforschenden Gesellschaft, Bd. LXX, Abh. 2.)

Hegner, R. W.

Outlines of medical zoology, with special reference to laboratory and field diagnosis... New York, The Macmillan Co., 1923. xv, 175 p., illus., col. pl. Contains bibliographies.

Herms, W. B.

Medical and veterinary entomology... Ed. 2. New York, The Macmillan Co., 1923. 462 p., illus.

Herrera, Moises.

Guia para visitar la coleccion de los aracnidos, miriapodos e insectos con especial indicacion de los artropodos nocivos al hombre y a la agricultura... Mexico, Talleres graficos de la Nacion, 1923. 200 p., illus., 59 pl. At head of title: Secretaria de Agricultura y Fomento. Direccion de Estudios Biologicos. Director: Alfonso L. Herrera.

Jamaica Dept. of Agriculture. Entomology Bulletins. 1-2. 1923-24.

1. Gowdey, C. C. The Coccidae of Jamaica. 46 [111] p. 1921.

2. Gowdey, C. C. The principal agricultural pests of Jamaica. 80 [vii] p., 7 pl.

Lenert, L. G.

Mosquito and malaria control. Sacramento, Calif., California State Printing Co., 1924. 41 p., illus. (Calif. St. Bd. Health Bul. 44)

Lucas, H.

Histoire naturelle des lepidopteres exotiques. Paris, Panquet, 1835. 150 p., 80 col. pl.

Leefmans, S.

Over den stand van den import der parasieten van den koffiebessenboek uit Uganda. Soerabaia, Typ. E. Fuhri, Jan. 1924. 11 p. Overgedrukt uit de Mededeelingen van het Koffiebessenboek-fonds No. 9, January, 1924.

Rennie, John.

...Acarine diseases explained. Aberdeen Bon-Accord Press, 1923. 50 p. (North of Scotland College of Agriculture, Memoir No. 6.)

Silvestri, Filippo.

... Stato attuale della lotta contro la mosca delle olive... Roma, Premiata Stab. Tipo-litografico V. Ferri, 1922. 31 p. Estratto dagli Atti del 1 Congresso di agricoltura meridionale Napoli, Settembre, 1921.

Young, R. T.

Biology in America. Boston, Richard Badger, The Gorham Press, 1922. 509 p., illus.